



Environmental Management Consolidated Business Center
Ash Fall Project

Sample Control

Procedure: AFP-AP-18
Revision 0, 01/24/16

Sample Control

Revision: 0
Effective Date is 3 days after the date of approval

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1.0 PURPOSE

The purpose of this procedure is to establish responsibilities and processes for controlling samples from the point of field collection through laboratory analysis for the Department of Energy Environmental Management Consolidated Business Center (EMCBC) Ash Fall Project supporting the Office of River Protection (ORP) Program.

2.0 SCOPE

The scope of this procedure is to describe the process for controlling the possession and handling of individual samples from the time of field collection; through transport and delivery to the laboratory; and receipt, storage, and analysis at the laboratory. This process describes how each sample is maintained “under custody” and must be used in conjunction with the process for packaging and shipping samples. These procedures are designed to ensure the integrity and traceability of samples collected as part of the Ash Fall Project in support the Office of River Protection (ORP) Program.

3.0 APPLICABILITY

This procedure applies to Ash Fall Project staff that participate in Ash Fall Project activities supporting the ORP Program.

4.0 REQUIREMENTS and REFERENCES

4.1 Requirements

4.1.1 EM-QA-001, *EM Quality Assurance Program (QAP)*

4.1.2 ASME NQA-1-2008/2009a, *Quality Assurance Requirements for Nuclear Facility Applications*

4.2 References

4.2.1 AFP-QAPP-01, *Quality Assurance Project Plan (QAPP)*

4.2.2 AFP-AP-03, *Data Control*

4.2.3 AFP-AP-12, *Procedure Development*

4.2.4 AFP-AP-19, *Corrective Actions*

4.2.5 AFP-AP-20, *Quality Assurance Records*

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4.2.6 AFP-AP-21, *Laboratory Notebook Control*

5.0 DEFINITIONS and ACRONYMS

- 5.1 Chain of Custody (COC) Record – the documentation that demonstrates samples were maintained in the possession of, or in the control of responsible personnel using specific COC forms from the point of collection through data reporting. COC forms document the following: project name¹ and number, station or location identification², sample identification numbers, date and time of collection, media type (i.e., sediment, soil, water), number of containers and types of analyses required for each sample, preservatives added to each sample, holding time requirements, any special handling instructions, signatures of each person in possession or control of the samples from the time of collection through receipt and analysis of samples in the laboratory.
- 5.2 Custody of Sample – the process of ensuring that a sample is in the possession of responsible personnel; or is in the view of, locked in secure containment, or placed in a designated secure area after being in the possession of the responsible personnel so that the sample may not be accessed or tampered with.
- 5.2.1 A responsible person is the EMCBC or designated Ash Fall Project staff assigned to collecting samples in the field (sampler), transferring and/or shipping the samples, and receiving and analyzing the samples at the laboratory.
- 5.3 Sample Identification Label – A label that is affixed to each sample container to prevent misidentification of the samples. The labels are usually self-adhesive so that they are not detachable. Information that should be recorded on each label includes: project identification¹, date and time of collection, preservative used (if any), type of analysis to be performed, name of sampler, and sample number.
- 5.3.1 Sample identification labels may be made and affixed to sample containers prior to sample collection or may be labeled in the field. Any information recorded in the field should be made using permanent water-proof ink.
- 5.3.2 Sample containers (including bags) and labels may be acquired from the laboratory contracted to perform the analytical work, or from an independent source.

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¹ The COC Record should contain the project name but should not reveal the location of the site or sample collection location to laboratory personnel.

² The sample label should not provide sample location information that may be interpreted by laboratory personnel as to the physical location of the sample, rather the label and COC Record should contain location identification numbers which reveal the sample location information to the Ash Fall Project staff or designated contractor staff only.

5.4 Nonconformance – A deficiency in characteristic, documentation, or procedure that renders the quality of an item, sample, or activity unacceptable or indeterminate.

6.0 RESPONSIBILITIES

6.1 Field Sampling Team Personnel (Ash Fall Project Staff)

6.1.1 Responsible for collection, care, and custody of all field samples from the time of collection until relinquishment of samples to personnel responsible for the shipment to the analytical laboratory.

6.1.2 Responsible for developing the Sampling and Analysis Plan (SAP) which documents the numbers, types, analysis requirements, and locations of samples to be collected for the project. The SAP includes all instructions pertaining to how each sample will be collected, what type of sample containers and preservatives will be required, which equipment and supplies will be needed for sampling, and includes all required sample collection Standard Operating Procedures (SOPs).

6.2 Ash Fall Project Quality Assurance (QA) Lead

6.2.1 Responsible for development of the Quality Assurance Project Plan (QAPP) which specifies the technical and quality requirements for sample collection and analysis so that the data are representative of site conditions, defensible, and meet the project objectives.

6.2.2 Responsible for coordinating with the EMCBC Coordinator, Office of Technical Support and Asset Management for the planning and approval of the SAP and QAPP.

6.3 EMCBC Coordinator, Office of Technical Support and Asset Management

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- 6.3.1 Responsible for maintaining configuration control, change control, and coordination of periodic reviews of controlled documents such as the SAP and QAPP.
- 6.3.2 Responsible for the maintenance/use, storage, protection, retrieval, and final disposition of controlled documents, samples, including analytical data reports for the project.

6.4 Laboratory Personnel

- 6.4.1 Responsible for taking possession of field samples upon delivery by signature on the COC forms, and securing the samples under custody in accordance with the applicable analytical preservation and storage requirements.
- 6.4.2 Responsible for maintaining custody of the samples from storage through the analysis and reporting of sample results using internal custody records. A copy of the COC initiated in the field should be included in the final data package for reporting the analytical results to project personnel.

7.0 GENERAL INFORMATION

None.

8.0 PROCEDURE

- 8.1 The Field Sampling Team Personnel (Ash Fall Project Staff) shall develop the Sampling and Analysis Plan (SAP) which documents the numbers, types, analysis requirements, and locations of samples to be collected for the project. The SAP includes all instructions pertaining to how each sample will be collected, what type of sample containers and preservatives will be required, which equipment and supplies will be needed for sampling, and includes any required sample collection Standard Operating Procedures (SOPs).
- 8.2 The sampling team personnel should collect samples in the field following the requirements of this procedure, QAPP, and applicable field sampling procedures.
 - 8.2.1 Pre-labeled sample containers should be used, or if sample labels are generated in the field, a permanent, water-proof marker should be used on the labels.

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- 8.3 Samples should be recorded on the applicable Attachment A or B COC by completing all fields on the COC Record form. Samples should be placed in a container.
- 8.3.1 The information that should be filled in on the COC Record include as a minimum; project name, site name/code (location) identifier, date and time of collection, sample identification numbers (with a number scheme – AFP-day-sample #), (i.e., AFP-23-1, etc.), container type (i.e., ash, sediment, soil, water) or Collection Media (filter type/ bulk type) as appropriate, approximate volume, collection method, any special handling instructions, and the names of sampling personnel including signature and date.
- 8.4 General information about sample collection should be also recorded in the Laboratory Notebook in accordance with procedure AFP-AP-21, *Laboratory Notebook Control*, including location and sample identification, field conditions, weather, unusual or nonconforming conditions at the site, any nonconformances that occur during sampling or which deviate from the procedure.
- 8.5 Samples should be placed in a plastic bag as secondary containment for the sample containers, and placed in a cooler or other secure container and should be maintained under custody of the sampling team personnel until it is transferred under signature release to sample management personnel or shipping personnel who will accept the samples by signing and dating the COC record. For shipping personnel, any form of documentation showing that they have accepted the package for shipping is acceptable. Attach this documentation to the COC.
- 8.5.1 Both the personnel relinquishing custody of the samples, and the personnel accepting custody of the samples are required to print, sign, and date the COC Record.
- 8.6 The samples should be wrapped in bubble wrap to prevent breakage during transport and placed in the shipping container (e.g., cooler or other secure containment).
- 8.7 The original and at least one copy of the COC Record must be placed inside a plastic zip-lock type storage bag and taped to the underside (interior) of the shipping container lid. One copy of the COC Record must be retained by the project sampling team member or designated project personnel for the project files.
- 8.7.1 The COC should be used by project personnel to reconcile the data reported by the laboratory to ensure all samples were received, analyzed, and

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correctly identified in the laboratory data reporting package by the laboratory.

- 8.7.2 Any samples used shall be appropriately identified on the laboratory data reporting package.
 - 8.8 Sample shipping container should be closed and secured with several layers of strapping tape.
 - 8.8.1 The shipping airbill should be completed and attached to the shipping container.
 - 8.8.2 The actual release time to the shipping company should then be entered in the Laboratory Notebook per procedure AFP-AP-21, *Laboratory Notebook Control*.
 - 8.9 If it is not possible to release the sample shipment to the shipping company, or if the samples must be retained overnight, the custodian must maintain custody of the samples until the shipment can be accomplished.
 - 8.9.1 If sample shipment is delayed, the sampling team or responsible custodian should contact the receiving laboratory to notify the appropriate personnel of the expected ship date and time.
 - 8.9.2 The sample custodians can also transport any samples through normal air travel as long as tampering devices (such as packing tape) can be applied.
 - 8.10 Any data collected based on the laboratory analysis shall be submitted in accordance with procedure AFP-AP-03, Data Control.
 - 8.11 Any samples that are considered to be nonconforming, are not to be used for any further processing, discarded, and any data collected using the nonconforming samples shall not be used. Any conditions considered nonconforming shall be documented in accordance with AFP-AP-19, *Corrective Actions*.
- 9.0 RECORDS
- 9.1 The approved document in its entirety shall be submitted by the EMCBC Coordinator to records in accordance with AFP-AP-20, *Quality Assurance Records*.

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9.2 The following are considered Lifetime QA Records:

- 9.2.1 Form 18-1 – Chain of Custody: Bulk Ash Sample
- 9.2.2 Form 18-2 – Chain of Custody: PI-SWERL® Sub-Sample
- 9.2.3 The sampling log book and associated records such as photographs
- 9.2.4 Shipment airbill

10.0 FORMS USED

Form 18-1 – Chain of Custody: Bulk Ash Sample
Form 18-2 – Chain of Custody: PI-SWERL® Sub-Sample

11.0 ATTACHMENTS

Attachment A – Chain of Custody: Bulk Ash Sample
Attachment B – Chain of Custody: PI-SWERL® Sub-Sample.

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Attachment A – Chain of Custody: Bulk Ash Samples

| Project Name/Code: | | | | Samples Shipped to: | | | |
|---|-------------|-------------------------------------|-----------------|----------------------------------|-------------------|--------------------------|--|
| Company Address: | | | | Shipping Address: | | | |
| E-mail Address: | | | | E-mail Address: | | | |
| Phone/Fax #: | | | | Phone/Fax #: | | | |
| Sampler(s) Name(s): Signature(s)/Date: | | | | Project Manager: | | | |
| Sampling Analysis Plan Number: | | | | | | | |
| # | Sample ID # | Date/Time Collected (DDMMYY, HH:MM) | Site Name /Code | Approx. Volume (L)/ mass (kg) | Collection Method | Container Type | Comments (any problems esp. with shipping, receipt & sample condition) |
| 1 | | | | | | | |
| 2 | | | | | | | |
| 3 | | | | | | | |
| 4 | | | | | | | |
| 5 | | | | | | | |
| Relinquished by / Affiliation (Sig.) | | Date (MM/DD/YY) | Time | Accepted by / Affiliation (Sig.) | | Custody Sealed Container | Condition of Samples Upon Receipt |
| | | | | | | | |

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Attachment B – Chain of Custody: PI-SWERL® Sub-Sample

| Project Name/Code: | | | | Samples Shipped to: | | | |
|---|-------------|---|-----------------|----------------------------------|-------------------|---|--|
| Company Address: | | | | Shipping Address: | | | |
| E-mail Address: | | | | E-mail Address: | | | |
| Phone/Fax #: | | | | Phone/Fax #: | | | |
| Sampler(s) Name(s): Signature(s)/Date: | | | | Project Manager: | | | |
| Sampling Analysis Plan Number: | | | | | | | |
| # | Sample ID # | Date/Time Collected (DDMMYYYY Y, HH:MM) | Site Name/ Code | PI-SWERL® Test ID(s) | Collection Method | Collection Media (filter type/ bulk type) | Comments (any problems esp. with shipping, receipt & sample condition) |
| 1 | | | | | | | |
| 2 | | | | | | | |
| 3 | | | | | | | |
| 4 | | | | | | | |
| 5 | | | | | | | |
| Relinquished by / Affiliation (Sig.) | | Date (MM/DD/YY) | Time | Accepted by / Affiliation (Sig.) | | Custody Sealed Container | Condition of Samples Upon Receipt |
| | | | | | | | |

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Form 12-1 – Record of Revision

DOCUMENT: AFP-AP-18, *Sample Control*

| Revision Number | Description of Changes | Revision on Pages | Effective Date |
|-----------------|------------------------|-------------------|----------------|
| 0 | Initial Issue | All | 01/24/2016 |
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